

Generalization of K-Weak-S-Lifting Semimodules

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Abstract:

In this note we introduce the notions of k -weak- s -lifting (or w_k - s -lifting for short) and k -weak- s --supplemented semimodules (or w_k - s --supplemented semimodules for short), and obtain some of their properties, characterizations, and decompositions.

An R -semimodule M is called s -lifting if every subtractive subsemimodule N of M there exists a strong direct summand K of M such that $N \subseteq K$ and $N \cap K^\perp = 0$. An R -semimodule M is called k -weak s -lifting (or w_k - s -lifting for short) if every k -strongly k -semisimple subtractive subsemimodule N of M there exists a strong direct summand K of M such that $N \subseteq K$ and $N \cap K^\perp = 0$.

An R -semimodule M is said to be a k -weak- s --supplemented semimodule, if for each strongly k -semisimple subtractive submodule N of M there exists a strong direct summand K of M such that $N \subseteq K$ and $N \cap K^\perp = 0$.

This allowed us to prove that not only every k -strongly k -semisimple semimodule is s -lifting if and only if it is w_k - s -lifting but for any subtractive semimodule M such that every supplement subsemimodule is fully invariant, M is w_k - s --supplemented if and only if it is w_k - s -lifting.

Keywords:

Subtractive semimodule, s -lifting semimodule, k -weak- s -lifting semimodule and k -weak- s --supplemented.